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06/12/2007

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EXAMINER

LOGIE, MICHAEL J

ART UNIT

PAPER NUMBER

2881

MAIL DATE

DELIVERY MODE

01/27/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/597,974	Applicant(s) AMELIA ET AL.	
	Examiner MICHAEL J. LOGIE	Art Unit 2881	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,7-14,17 and 20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,7-14,17 and 20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

An "Amendment" was received on 12/16/2009, in response to Office Action of 06/16/2009. Claims 1, 3-5, 7-14 and 17 have been amended. Claims 2, 6 and 15-16 have been cancelled. Claims 1, 3-5, 7-14 and 17 are now pending.

Response to Arguments

Applicant's arguments with respect to claims 1, 3-5, 7-14 and 17 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-5, 7, 8, 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schlyer et al. (USPN 5,917,874) and further in view of Zeisler et al. (US pgPub 2005/0201504).

In regards to claims 1 and 14, Schlyer et al. teach an irradiation cell (fig. 1, 14) for producing a radioisotope of interest through the irradiation of a target material by a particle beam (fig. 1, 20, wherein the abstract teaches holding a sample for irradiation by a particle beam to produce a radioisotope), comprising a target body (fig. 2, tubular

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holder 46 and mounting flange 44), a removable metallic insert (fig. 2, 24 and 40b, note: col. 5, lines 6-9 "The mounting flange 44 is sized in outer diameter to fit closely within the inner bore of a tubular holder 46 mounted to the accelerator housing 22 for allowing simple assembly and disassembly of the target 14 in the system." Therefore the insert is removable) comprising a cavity (fig. 2, depression 26) designed to house the target material (col. 2, lines 59-61, note: "The body 24 includes a front side 24a in which is centrally formed a shallow depression or reservoir 26 which receives and holds the sample 12") and closed by an irradiation window (col. 2, lines 65-66 teaches a window 30 sealing jointed to the body front side to cover or close depression 26) and configured to be inserted in and removed from the target body (the target 14 has easy assembly and disassembly as discussed in col. 5, lines 6-9), wherein the removable metallic insert comprises at least two separate metallic parts of different materials (fig. 2, body 24 comprises silver col. 2, lines 56-59 and housing 40b, wherein the material of 40b is not disclosed), being composed of at least a first part and a second part (fig. 2, 40b and 24), the first part configured to provide an elongated cavity (fig. 2, depression 26 is elongated in a direction perpendicular to the beam), and the second part surrounding the first part in a configuration to form a channel for guiding a cooling medium (the housing 40b surrounds the backside 42 of body 24 so as to form a channel 40c (i.e. a means of passage from the inlet 40d to outlet 40e) wherein the cooling medium follows circulating coolant lines 40a).

Schlyer et al. differs from the claimed invention by not providing the material of the second part of the insert.

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Zeisler et al. teaches a cooling jacket that comprises stainless steel ([0025]).

Zeisler et al. modifies Schlyer by providing stainless steel as a material for the housing.

Since both Zeisler et al. and Schlyer et al. teach irradiation cells, it would be obvious to one of ordinary skill to have the stainless steel material of Zeisler et al. in the device of Schlyer et al. because stainless steel is readily available, relatively low cost and easily manipulated into a desired form.

In regards to claim 3, Schlyer et al. teach wherein said cell further comprises a supply means for a cooling medium (fig. 2, 40d) and in connection with the supply means, a diffuser device surrounding the first part (cooling fins 28 surround the backside 42 of the body 24), the diffuser device being configured to guide the cooling medium around the first part (see circulation lines 40a), and wherein the second part surrounds both the first part and the diffuser device in a manner to form a return path for the cooling medium between the diffuser device and the second part (as seen in figure 2).

In regards to claim 4, Schlyer et al. teach wherein the contact between the first and second part is a metal-to-metal contact, and wherein the parts are sealed by at least one o-ring (col. 4, lines 18-22, note: "housing 40b fixedly joined to the backside of the body 24 by additional ones of the bolts 34 as illustrated", wherein the specifications of the sealing means are not disclosed by Schlyer et al., the teachings of Schlyer et al. enable one of ordinary skill to tailor the device to their specific design needs.).

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In regards to claims 5, 7 and 8 describe coupling of the two parts by gold foil, bolts, and welding. Although Schlyer et al. only describes coupling by bolts, fixing means such as gold foil, bolts and welding are commonly used in assembling devices and integration is part of the common knowledge of a skilled person. Thus having such fixing means would have been obvious to one of ordinary skill in the art because the substitution of one known element for another would have yielded predictable results.

In regards to claim 13, Schlyer et al. differ from the claimed invention by not disclosing wherein the first part is made of niobium.

Zeisler et al. teaches using niobium as the material for forming the absorbing material 200 housing cavity 190.

Zeisler et al. modifies Schlyer by providing niobium as a material for the cavity.

Since both Zeisler et al. and Schlyer et al. teach irradiation cells, it would be obvious to one of ordinary skill to have the niobium material of Zeisler et al. in the device of Schlyer et al. because niobium has high heat conducting capabilities and chemical inertness as required by the metal body of Schlyer et al.

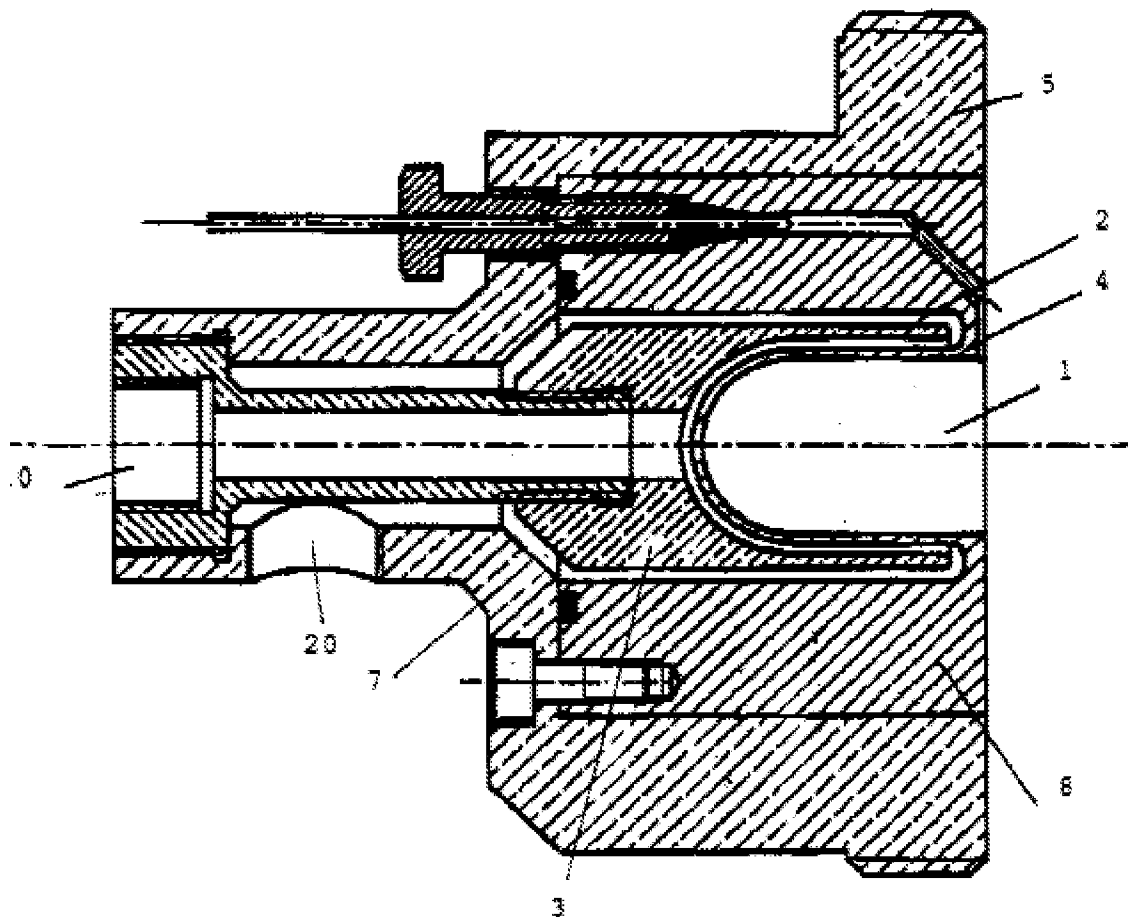
Claims 9, 10, 11, 12 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combined invention of Schlyer et al. (USPN 5,917,874) and Zeisler et al. (US pgPub 2005/0201504) as in claim 1 and further in view of BE 1011263 A6 (translation submitted with the remarks of 12/16/2009).

In regards to claim 9 the combined invention differs from the claimed invention by not disclosing wherein the first part comprises a flat, circular and ring-shaped portion

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having an inner circular edge and an outer circular edge, a cylindrical portion rising perpendicularly from the inner circular edge of the flat portion, and a hemispherical portion being on top of the cylindrical portion, the cavity being formed inside the cylindrical and hemispherical portions.

'263 teaches wherein the first part comprises a flat, circular and ring-shaped portion having an inner circular edge and an outer circular edge, a cylindrical portion rising perpendicularly from the inner circular edge of the flat portion, and a hemispherical portion being on top of the cylindrical portion, the cavity being formed inside the cylindrical and hemispherical portions.



'263 show Cavity 1 is formed by part 8 which has cylindrical walls rising perpendicularly from the right side of the figure to form a hemispherical end.

'263 modifies the combined invention by teaching an enclosed cavity for the target material removed from the window.

Since '263 and the combined invention both teach an irradiation cell for producing a radioisotope, it would be obvious to one of ordinary skill in the art to have the hemispherical end of '263 in the irradiation cell of Ferrier because "the hemispherical cavity increases the power transmitted to the target" (advantage stated in derwent basic abstract).

In regards to claim 10, Schlyer et al. differ from the claimed invention by not disclosing the cavity has a length of at least 50 mm.

Zeisler teaches wherein said cavity has a length of at least 50 mm ([0048] and table 2).

Zeisler et al. modifies Schlyer et al. by providing length to the cavity.

Since both Zeisler et al. and Schlyer et al. teach irradiation cells, it would be obvious to one of ordinary skill to have the length of the cavity of Zeisler in the device of Schlyer et al. because it would provide for complete absorption of the proton beam ([0048])

In regards to claim 11, Schlyer et al. teach wherein the second part has the form of a hollow cylinder having two flat sides essentially perpendicular to a cylindrical side, the cylinder being connected by one flat side against the flat portion of the first part (as

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seen in figures 2 and 3, 40b connects to the flat portion of 24 and sides cylindrically rise from the back portion thereof).

In regards to claim 12, although Schlyer et al. only describes coupling by bolts, fixing means such as ridge fittings are commonly used in assembling devices and integration is part of the common knowledge of a skilled person. Thus having such fixing means would have been obvious to one of ordinary skill in the art because the substitution of one known element for another would have yielded predictable results.

In regards to claim 20, Schlyer et al. teach wherein the cell further comprises a supply tube for a cooling medium (fig. 2, 40d), the diffuser device surrounding the first part (cooling wings 28 surround backside 42 of body 24), the diffuser element being configured to guide the cooling medium around the first part (see arrows 40a in figure 2), and wherein the second part surrounds both the first part and the diffuser element in a manner to form a return path for the cooling medium between the diffuser element and the second part (as seen in figure 2).

The combined invention differs from the claimed invention by teaching in connection with the supply tube, a diffuser device mounted on one end of the supply tube.

'263 teaches in connection with the supply tube (fig. 1, 10), a diffuser device mounted on one end of the supply tube (fig. 1, 3).

'263 modifies the combined invention teaching the diffuser mounted to the supply tube.

Since '263 and the combined invention both teach an irradiation cell for producing a radioisotope, it would be obvious to one of ordinary skill in the art to have the diffuser arrangement of '263 in the combined invention because "it would increase the heat exchange surface area" (page 4, lines 25-27 of '263).

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combined invention of Schlyer et al. (USPN 5,917,874) and Zeisler et al. (US pgPub 2005/0201504) as in claim 1 and further in view of Wieland (US pgPub 2004/0000637).

In regards to claim 17, the combined invention differs from the claimed invention by not disclosing method for filling the cavity volume with about 50% of target material, before starting irradiation by using an irradiation cell according to claim 1.

Wieland teaches method for filling the cavity volume with about 50% of target material, before starting irradiation by using an irradiation cell ([0006]).

Wieland modifies the combined invention by providing a method of partially filling the cavity.

Since both the combined invention and Wieland teach an irradiation cell, it would be obvious to one of ordinary skill in the art to have the partially filled volume of Wieland in the device of the combined invention because it would prevent the window from breaking due to a rapid pressure rise because of boiling water.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pertinent prior art is closely related art that individually or in

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combination could be considered grounds for rejection. See references cited for a listing of the pertinent prior art found and the prior art found.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Logie whose telephone number is 571-270-1616. The examiner can normally be reached on 7:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/M. J. L./

Examiner, Art Unit 2881

/ROBERT KIM/

Supervisory Patent Examiner, Art Unit 2881